

CHAPTER 4

DOCKAGE-FREE PEAS

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CHAPTER 4

DOCKAGE-FREE PEAS

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Attachment 1 - Grades and Grade Requirements for Dockage-Free Peas

4.1 DEFINITIONS

Dockage-Free Dry Peas. Dry peas from which the dockage has been removed.

Whole Dry Peas. Threshed seeds of the garden type pea plant (Pisum sativum L. and Pisum sativum var. arvense (L.) Poir.), which after the removal of dockage, contain 50.0 percent or more of whole peas and not more than 10.0 percent of foreign material.

Split Peas. The halves or smaller pieces of dry peas, and dry peas in which the halves are loosely held together.

Thresher-Run Dry Peas. Dry peas from which the dockage has not been removed.

If a sample does not meet the definition of Whole Dry Peas, examine it further to determine if it is:

- a. Another commodity or grain for which standards have been established; or
- b. “Not Standardized Commodity.” No further analysis is necessary on a sample designated as “Not Standardized Commodity” unless a specific factor test is requested.

4.2 GRADES AND GRADE REQUIREMENTS

The grades and grade requirements for all classes of whole dry peas are shown in the United States Standards for Whole Dry Peas and in the Attachment, "Grades and Grade Requirements for Dockage Free Peas," to this chapter.

4.3 SPECIAL GRADES AND SPECIAL GRADE REQUIREMENTS

- a. The special grades and special grade requirements of all classes of Whole Dry peas are shown in the United States Standards for Whole Dry Peas.
- b. A special grade, when applicable, is supplemental to the grade assigned. Such special grades for Whole Dry peas are defined as follows:
 - (1) Large. Peas of the classes Smooth Green Dry Peas or Smooth Yellow Dry Peas of which not more than 3.0 percent of the peas will readily pass through the 16/64-inch round-hole sieve.

- (2) Small. Peas of the classes Smooth Green Dry Peas or Smooth Yellow Dry Peas of which not more than 3.0 percent of the peas will remain on the 16/64-inch round-hole sieve and not more than 3.0 percent will readily pass through the 10/64- x 3/4-inch slotted-hole sieve.

4.4 WORK RECORD

Record the results of all tests and findings clearly and accurately on a laboratory ticket or similar form. This will be used as the source of the information reported on the inspection certificate. FGIS personnel must use either form FGIS-981, "Pea and Lentil Laboratory Ticket," or form FGIS-982, "Pea and Lentil Sample Ticket." Cooperators must use a similar form.

4.5 REPRESENTATIVE PORTION

A specified quantity of peas divided out from the representative sample (refer to Chapter 2, sampling chapter) by means of an FGIS approved device.

4.6 WORK SAMPLE

A representative portion of peas (approximate size - 1,000 grams) that is used to make all such determinations required for a particular class of peas.

4.7 FILE SAMPLE

- a. A representative portion of peas (approximate size - 1,000 grams) that may be used in conjunction with the work sample, when needed, to determine the complete grade. File samples may also be used for monitoring, appeal inspection and board appeal purposes.
- b. Retain file samples in appropriate containers for the required retention period. After maintaining for the required period, dispose of the file samples in accordance with established procedures. See FGIS Directive 9170.13, "Uniform File Sample Retention System," for additional information.

4.8 PERCENTAGES

- a. Percentages are determined upon the basis of weight and are rounded as follows:
 - (1) When the figure to be rounded is followed by a figure greater than or equal to 5, round to the next higher figure; e.g., report 6.36 as 6.4, 0.35 as 0.4, and 2.45 as 2.5.

- (2) When the figure to be rounded is followed by a figure less than 5, retain the figure; e.g., report 8.34 as 8.3, and 1.22 as 1.2.

- b. Record factor results to the nearest tenth percent.

4.9 LABORATORY SCALES

Weigh work portions and separations from work portions using an approved grain test scale with an appropriate division size. See Equipment Handbook, Chapter 2.

4.10 PRELIMINARY EXAMINATION

- a. The sampler must: (1) observe the uniformity of the peas as to class, quality and condition; (2) make the determination for "Heating;" (3) draw the representative sample; and (4) report relevant information to the inspector.
- b. The inspector must review the sampler's remarks/information. If the inspector has questions or doubts the representativeness of the sample, he or she must contact the sampler and obtain the needed information or make arrangements to obtain another sample.

4.11 BASIS OF DETERMINATION

All factor determinations must be made upon the basis of the dry peas after the removal of dockage with the following exceptions:

Dockage in thresher-run dry peas must be determined upon the basis of the peas as sampled.

Color must be determined after the removal of dockage, defective peas, and foreign material.

Defects in peas must be scored in accordance with the order shown in section 402(d) and once an individual pea is scored in a defective category, it must not be scored for any other defect. Percentages for all categories of defects must be calculated on the basis of the total weight of the sample analyzed for defective peas.

NOTE 1: When peas that are offered for inspection as one lot are found to contain more than 10,000 containers or 1,000,000 pounds (bulk) of peas, the lot must be sampled on the basis of two or more (approximately) equal sized sublots of 10,000 containers or 1,000,000 pounds or less. Inspect each sublot separately.

NOTE 2: When peas that are offered for inspection as one lot are subsequently found to contain portions that are distinctly different in class, quality, or condition, the peas in each portion must be inspected separately.

Follow a systematic grading procedure. The order of procedure varies with the class and quality of the peas and the tests that are required to determine the grade. A general order of procedure is as follows:

- (1) Review the information on the sample ticket.
- (2) Examine the representative sample for odor, broken glass, metal fragments, and distinctly low quality.
- (3) Use an FGIS approved divider to process the representative sample into three representative portions: (a) work sample, (b) file sample, and (c) moisture portion.
- (4) Examine the work sample for class and infestation.
- (5) Divide out a 250-gram portion. When necessary, sieve the portion to determine if the peas meet the size requirements for "large" or "small" peas, or for applying numerical grades. **For special grade "small" peas, all portion sizes may be 125-grams.**
- (6) Examine the 250-gram portion for defective peas, other classes, and foreign material.
- (7) After removing the defective peas and foreign material from the portion, examine the "clean" portion for color.

4.12 INSECT INFESTATION

NOTE: "Weevils" include pea weevils, coffee bean weevils, broad nosed grain weevils, rice weevils, granary weevils, maize weevils and lesser grain borers. "Other live insects" include beetles, moths, meal worms and other insects injurious to stored peas. Insect larvae are considered the same as adult insects. Dead insects do not apply.

To further define "other insects injurious to stored peas" refer to the USDA-ARS, Agricultural Handbook 500 – Stored Grain Insects. Images of insects may also be viewed on the GIPSA website.

- a. Determine infestation on the basis of the work sample as a whole, a representative portion of approximately 250 grams, and the lot as a whole.
- (1) Perform a cursory examination of the work sample. If two or more live insects are found, consider the peas to be "U.S. Sample grade."
 - (2) Closely examine a representative portion of approximately 250 grams divided out from the work sample.
 - (a) If no live insects are found in the sample, make no further check of the sample for insects.
 - (b) If two or more live insects are found, consider the peas to be "U.S. Sample grade."
 - (c) If one live insect is found, examine the remainder of the work and file sample.
 - 1 If one or more live insects are found in the remainder of the work or file sample, consider the peas to be "U.S. Sample grade."
 - 2 If no live insects are found in the remainder of the work or file sample, do not consider the peas to be "U.S. Sample grade."
 - (3) Examine the peas in the lot; i.e., the surface area of the lot and the area around the lot.
- NOTE:** **The presence of pea weevils in a warehouse should not be considered an indication of infestation unless pea weevils are also found inside bags or containers of peas.**
- (a) If no live insects are found in, on, or about the lot, make no further check of the lot for insects.
 - (b) If two or more live insects are found, consider the peas to be "U.S. Sample grade."
- b. When applicable, show the number of live insects on the work record and results section of the certificate, and grade the peas "U.S. Sample grade."

4.13 MOISTURE

Moisture. Water content in whole peas as determined by an approved device according to procedures prescribed in FGIS instructions.

The moisture of whole dry peas is determined by using the GAC2500-UGMA and Perten AM 5200-A instruments utilizing the calibrations of the predominate type of pea (see FGIS Directive 9180.61).

Basis of Determination. Determine moisture on a representative portion of approximately 650-grams.

The procedures for performing a moisture determination using the GAC2500-UGMA and Perten AM 5200-A meters are described in the Moisture Handbook.

Certification. Record the percent of moisture on the work record and result section of the certificate to the nearest tenth percent. If the moisture results exceed 15.0 percent, grade the peas "U.S. Sample grade."

NOTE: To determine moisture on Marrowfat Peas use the Smooth Green Dry Pea moisture chart.

4.14 TEST WEIGHT PER BUSHEL

NOTE: This factor is not provided for under the United States Standards for Whole Dry Peas, but may be determined upon request.

- a. Determine test weight per bushel on a representative portion of sufficient size to overflow the kettle.
- b. See Chapter 1 of the Grain Inspection Handbook, Book II, for information about performing test weight per bushel determinations.
- c. Record the test weight per bushel on the work record and results section of the certificate to the nearest tenth of a pound.

4.15 CLASS

Peas are divided into the following classes:

Smooth Green Dry Peas. Dry peas which have smooth seedcoats and green cotyledons and contain not more than 1.5 percent of other classes.

Smooth Yellow Dry Peas. Dry peas which have smooth seedcoats and yellow cotyledons and contain not more than 1.5 percent of other classes.

Wrinkled Dry Peas. Dry peas which have wrinkled seedcoats and contain no more than 1.5 percent of other classes.

Mottled Dry Peas. Dry peas of the Austrian winter pea type and other peas which have colored or distinctively mottled seedcoats which contain no more than 1.5 percent of other classes.

Miscellaneous Dry Peas. Dry peas that do not meet the criteria for any other class of dry peas and contain no more than 1.5 percent of other classes. (The grade limits for the factor Bleached peas must not apply to Miscellaneous Dry peas, except for Marrowfat-type Dry peas.)

Mixed Dry Peas. Any mixture that does not meet the requirements for the classes Smooth Green, Smooth Yellow, Wrinkled, Mottled, or Miscellaneous Dry peas; or any mixture of different types of Miscellaneous Dry peas.

- a. Class is usually determined by a cursory examination of the work sample as a whole.
- b. When a detailed examination is necessary, make this determination on a representative portion of approximately 250 grams.
- c. If the peas contain more than 1.5 percent of "other classes:"
 - (1) Record the percent of each class on the work record to the nearest tenth percent.
 - (2) Grade the peas "Mixed Dry peas," and record the percent of each class of peas to the nearest tenth percent on the work record and result section of the certificate.
- d. Miscellaneous dry peas are any class of dry peas not classified in the standards. For certification, show the commonly accepted commercial name as the class.

4.16 ODOR

- a. Determine odor on the basis of the lot as a whole or the representative sample as a whole.
- (1) Off odors (i.e., musty, sour and commercially objectionable odors) are usually detected at the time of sampling.
 - (a) If there is any question as to the odor when the sample is being taken, put part of the sample into an airtight container to preserve its condition for further examination in the laboratory.
 - (b) Return the portion to the sample before other tests are made.
 - (2) A **musty** odor is any odor that is earthy, moldy, and ground like. Do not confuse a burlap bag odor with a musty odor.
 - A drier odor that resembles a moldy or basement odor should be made “Musty.”
 - (3) A **sour** odor is any odor that is rancid, sharp, or acrid.
 - (4) A **commercially objectionable** odor is any odor that is not normal to dry peas and that, because of its presence, renders the dry peas unfit for normal commercial usage; e.g., animal hides, fertilizer, oil products, skunk, smoke, fire-burnt, and decaying animal and vegetable matter odors.

NOTE: A sample with a light drier (cooked) odor is not considered an objectionable odor.

- (5) Fumigant or insecticide odors are considered commercially objectionable odors if they linger and do not dissipate. When a sample of peas contains a fumigant or insecticide odor that prohibits a determination as to whether any other odor(s) exists, apply the following guidelines:
 - (a) Original Inspections. Allow the work portion to aerate in an open container for a period not to exceed 4 hours.

- (b) Appeal and Board Appeal Inspections. Allow unworked file samples and new samples to aerate in an open container for a period not to exceed 4 hours. The 4-hour aeration requirement does not apply when the original work portion was aerated and retained as the final file.
 - (c) Final Action. Consider the sample as having a commercially objectionable odor if the fumigant or insecticide odor persists based on the above criteria.
 - b. When peas are determined to be musty, sour, or have a commercially objectionable odor, record the type of odor on the work record and the result section of the certificate, and grade the peas "U.S. Sample grade."
- 4.17 HEATING**
- a. Determine heating on the basis of the lot as a whole.
 - (1) When high temperatures develop in dry peas as the result of excessive respiration, such peas are heating.
 - (2) Heating peas usually give off a sour or musty odor.
 - (3) Care should be taken never to confuse peas that are warm due to storage in bins, cars, or other containers during hot weather with peas that are heating from excessive respiration.
 - b. When applicable, show the term "Heating" on the work record and result section of the certificate, and grade the peas "U.S. Sample grade."

4.18 DEFECTIVE PEAS

The categories of defective peas must be weevil-damaged peas, heat-damaged peas, damaged peas, other classes, bleached peas, split peas, shriveled peas and peas with cracked seedcoats.

- a. Determine defective peas on a representative portion of approximately 250 grams.
- b. Score defects in the following order: Weevil damaged, heat damaged, damaged, other classes, bleached peas, split peas, shriveled peas and peas with cracked seedcoats.

- (1) Once an individual pea is scored, do not score it for any other defect but retain it as part of the sample for purposes of determining the percentage of total defects in the sample.
- (2) Record the percent of each type of defect on the work record and the certificate to the nearest tenth percent.

4.19 WEEVIL-DAMAGED PEAS

Weevil Damaged Peas. *Whole and pieces of dry peas which are distinctly damaged by the pea weevil or other insects.*

- a. Determine weevil damaged peas on a representative portion of approximately 250 grams.
 - (1) Weevil eaten damage. Peas which have been eaten by weevils to the extent that the peas are light in weight and can be removed readily from the sound peas in the processing plant by either a gravity machine or brine solution. (See VRI [Peas - 1.6 Weevil Damage](#)).
 - (2) Pinhole damage.
 - (a) Peas which have been stung by the pea weevil or other insect, and the damage extends into the cotyledon. Peas that have been "marked" by insects but where the sting does not penetrate the cotyledon are not considered weevil damaged peas.
 - (b) Peas containing dead larvae in which the cavities are small (e.g., about dull pencil lead size). (See VRI --[Peas - 1.6 Weevil Damage](#)).

NOTE: Any pea that contains or has contained a weevil or larvae of the pea weevil is considered weevil-damaged.

Dead insects, when found in the cavity of a pea, cause the pea to be considered weevil damage.

- b. Weevil damaged peas are usually bleached in appearance and show a discolored window which indicates the presence of larvae within the pea. There are two methods of determining weevil damage.

(1) Visual Examination.

- (a) Examine each pea for evidence of weevil stings or boring.
- (b) If a pea has been stung, cut the pea to determine the extent of the penetration and whether it contains a live insect.

(2) Brine Solution Test.

NOTE 1: Complete all other factor examinations before soaking the peas in a brine solution.

NOTE 2: This method is not satisfactory for wrinkled peas as the wrinkles form pockets which may cause many sound peas to float along with the weevil damaged peas.

- (a) Place a wire basket (a tube 6 inches wide by 7 inches deep, eight-mesh-per-inch screen) in a stone jar. Fill the stone jar about half full with water. Then add calcium chloride until a specific gravity of 1.225 is reached.
 - (b) Pour the representative portion into the screen and stir so that all air pockets are eliminated.
 - (c) Use a tea strainer type ladle to lift out the peas which float on top of the solution. Peas that float are normally weevil damaged, but this should be confirmed by visual examination.
 - (d) Skim off the peas that float and thoroughly rinse them under running water.
 - (e) Partially dry the "floaters" on blotter trays. Then place the peas in heater trays (wire screens having **1/8-inch** openings), set the trays in a heater/dryer until all the surface moisture has disappeared, and visually examine for weevil damage.
- c. Record the percent of weevil damaged peas (total of those found by visual examination and by brine solution test) on the work record and results section of the certificate to the nearest tenth percent.

4.20 HEAT DAMAGED PEAS

Heat-Damaged Peas. Whole and pieces of dry peas which have been materially discolored as a result of heating.

- a. Determine heat damaged peas on a representative portion of approximately 250 grams. (See VRI – Peas/S. Peas – 1.2 Heat Damage).
- b. Record the percent of heat damaged peas on the work record and the certificate to the nearest tenth percent.

4.21 DAMAGED PEAS

Damaged Peas. Whole and pieces of dry peas which are distinctly: (1) damaged by frost, weather, disease, heat (other than materially discolored as a result of heating), or other causes; and (2) soiled or stained by dirt (not applicable for the class Wrinkled Dry peas).

Damaged peas must not include weevil-damaged peas or heat-damaged peas.

- a. Determine damaged peas on a representative portion of approximately 250 grams.
- b. The major types of damaged peas are as follows:

- (1) Dirt and Grime Damaged Peas. Dirt and grime damaged peas include peas and pieces of peas with dirt or grime (including nightshade juice/bag markings/ink stains) adhering to the seedcoat equal to or greater than shown on (See VRI - Peas - 1.1 Damage (A. Dirt, B. Grime)).

NOTE: Dirt and grime damage does not apply to the class Wrinkled Dry peas or smooth seeded peas grown for seed purposes.

- (2) Frost Damaged Peas. Peas and pieces of peas which have been damaged by frost to the extent that the cotyledon has been discolored green with an area of coverage and intensity equal to or greater than shown on (See VRI - Peas - 1.8 Frost Damage). Frost damage is indicated by the appearance of the whole pea, but the actual determination for damage must be made on the basis of the opened pea.

- (3) Mold/Mildew Damaged Peas. Peas and pieces of peas which contain mold/mildew equal to or greater than that shown on (See VRI - [Peas - 1.4 Mold/Mildew Damage](#)). Mold/Mildew may appear on or around the hilum, the surface, and/or the cotyledon. A pea that contains any mold/mildew on the cotyledon must be considered damaged.
- (4) Sprout Damaged Peas. Peas and pieces of peas which are sprouted in which the sprout is equal to or greater than that shown on. (See VRI - [Peas - 1.5 Sprout Damage](#)).
- (5) Badly Shriveled Peas. Peas that are shriveled and discolored to a deep brown or reddish cast.
- (6) Worm Eaten or Worm Cut Peas. Peas and pieces of peas which have been chewed by insect larvae; not to be confused with weevil-bored peas containing insect webbing or filth. Any chewed pea is considered damaged.
- (7) Chalky Peas. Peas that have a white spot caused by unusual weather conditions, some harvesting practices, and/or Lygus bug stings. (Do not scrape the cotyledon of suspect peas, merely remove their seedcoats.) Chalky peas are considered damaged peas, not weevil-damaged peas. (See VRI - [Peas/Spilt Peas - 1.0 Damage \(Chalky\)](#)).
- (8) Damaged by Heat. Peas that have been damaged by heat to the extent that the cotyledon has been discolored equal to or greater than that shown on (See VRI - [Peas/Split Peas 1.3 Damage By Heat](#)).
- (9) Bacterium/Fungal Stain. Peas and pieces of peas that are stained by bacterium and/or fungal species to the minimum intensity shown at the center of the pea and in which the discoloration covers 50 percent or more of the pea's surface are considered damage. These conditions can affect seed development and color, with severely infected seeds appearing much smaller than normal and having purple to pink discolored seedcoats. (See [VRI – Peas – 5.3 Bacterium/Fungal Stain](#).)
- (10) Weather Damage. Peas and pieces of peas in which the surface area is discolored to the minimum intensity and coverage shown are considered damage. (See [VRI – Peas – 5.4 Weather Damage](#).)

- c. Record the percent of damaged peas on the work record and result section of the certificate to the nearest tenth percent.

4.22 OTHER CLASSES

Other Classes. *Whole and pieces of dry peas which are of a contrasting color or which differ materially in shape, or other characteristics from the predominating class; and in the case of Miscellaneous Dry peas, which differ from the predominating type.*

- a. Determine other classes on a representative portion of approximately 250 grams of dockage-free peas.
- b. Mixed peas rarely appear on the market. Slight mixtures sometimes occur affecting the quality or grade of peas. This is especially true of peas of widely different types.
 - (1) Examples of mixtures of other classes are:
 - (a) Smooth Green Dry Peas mixed with Smooth Yellow Dry Peas or vice versa.
 - (b) Marrowfats mixed with either Smooth Green or Yellow Dry Peas or vice versa.
 - (2) Wrinkled varieties found in smooth varieties always function as other classes even though the cotyledon and seedcoat may be the same color as the smooth peas. Conversely, smooth peas function as other classes when found in the wrinkled varieties.
- c. Record the percent of other classes on the work record and result section of the certificate to the nearest tenth percent.

4.23 BLEACHED PEAS

Bleached Peas. *Whole and pieces of dry peas of green-colored varieties which are bleached distinctly yellow in color or peas of yellow-colored varieties which are bleached distinctly green in color.*

NOTE: **The grade limits for the factor Bleached peas must not apply to Wrinkled, Mottled and Miscellaneous Dry peas, except for Marrowfat-type dry peas.**

NOTE: Bleached peas are applicable as a grading factor in Mixed Peas.

- a. Determine bleached peas on a representative portion of approximately 250 grams.
- b. Bleached peas are usually caused by adverse weather conditions prior to and during harvest, or by storage.
- c. Bleached green peas are green-colored varieties of peas with one-eighth or more of the surface distinctly bleached to a white or light creamy yellow color (See VRI [Peas/Split Peas -2.0 Bleached \(Green Peas\)](#)). Bleached Yellow peas are yellow-colored varieties of peas with one-eighth or more of the surface distinctly bleached to a greenish color (See VRI- [Peas/Split Peas - 2.1 Bleached \(Yellow Peas\)](#)).

NOTE: To facilitate the determination of this factor, the seedcoat may be partially removed to enable better examination of the cotyledon.

- d. Record the percent of Bleached peas on the work record and result section of the certificate to the nearest tenth percent.

4.24 SPLIT PEAS

Split Peas. The halves or smaller pieces of dry peas and dry peas in which the halves are loosely held together.

- a. Determine split peas on a representative portion of approximately 250 grams.
- b. Small broken pieces of peas function as splits.
- c. Record the percent of split peas on the work record and result section of the certificate to the nearest tenth percent.

4.25 SHRIVELED PEAS

Shriveled Peas. Dry peas which are distinctly shriveled in contrast to the natural shape and appearance of normally developed peas.

- a. Determine shriveled peas on a representative portion of approximately 250 grams.
- b. Shriveled (smooth-type) peas are usually discolored, misshapen, deeply dimpled, and/or withered in appearance. (See VRI – [Peas - 5.0 Shriveled \(Smooth\)](#)).

- c. Care should be taken not to confuse "normal" wrinkled peas for shriveled peas. Wrinkled peas are considered shriveled if they are slightly shriveled and distinctly discolored (caramelized), or slightly discolored with severe dimpling in the seedcoat. (See VRI - [Peas - 5.2 Shriveled \(Wrinkled\)](#)).
- d. Record the percent of shriveled peas on the work record and result section of the certificate to the nearest tenth percent.

4.26 PEAS WITH CRACKED SEEDCOATS

Peas with Cracked Seedcoats. Dry peas having readily discernible cracked seedcoats or peas which have all or a part of the seedcoat removed, and broken peas which are more than one-half of a whole pea.

- a. Determine peas with cracked seedcoats on a representative portion of approximately 250 grams.

NOTE: When the brining method is used to determine weevil-damaged peas, do not use the brined portion to determine peas with cracked seedcoats.

- b. Peas with growth stress cracks which are usually tight and next to the hilum function as cracked seedcoats.
- c. Do not consider peas to be "peas with cracked seedcoats," if the cracked seedcoats can only be detected by rubbing the peas between your fingers. (See VRI - [Peas - 3.0 Cracked Seed Coats](#)).
- d. Record the percent of peas with cracked seedcoats on the work record and result section of the certificate to the nearest tenth percent.

4.27 FOREIGN MATERIAL

Foreign Material. All matter other than dry peas, including detached seedcoats.

- a. Determine foreign material on a representative portion of approximately 250 grams.
 - (1) Small pieces of seedcoats and dead insects both function as foreign material.

- b. Record the percent of foreign material on the work record and the certificate to the nearest tenth percent.

4.28 SIZE REQUIREMENTS

Dry peas of any of the numerical grades must be of such size that not more than 3.0 percent must pass through the appropriate oblong-hole sieve as follows:

| <u>Peas</u> | <u>Appropriate Sieve</u> |
|----------------------------|-------------------------------------|
| Mottled Dry Peas | 9/64 " x 3/4 " |
| Special Grade "Small" Peas | 10/64 " x 3/4 " |
| All Other Peas | 11/64 " x 3/4 " (oblong or slotted) |

Large. Peas of the classes Smooth Green Dry peas or Smooth Yellow Dry peas of which not more than 3.0 percent of the peas will readily pass through the 16/64-inch round-hole sieve.

Small. Peas of the classes Smooth Green Dry peas or Smooth Yellow Dry peas of which not more than 3.0 percent of the peas will remain on the 16/64-inch round-hole sieve and not more than 3.0 percent will readily pass through the 10/64-inch x 3/4-inch slotted-hole sieve.

- a. Determine uniformity of size and/or the special grades "Large" and "Small" on a representative portion of approximately 250 grams.
- (1) Size peas for determining uniformity, by sieving the representative portion with the appropriate size sieve (see Table 1). For Mixed Dry peas and Miscellaneous Dry peas, use the sieve prescribed for the class of peas that predominates the mixture.

| <u>Table 1 - Prescribed Sieves</u> | |
|------------------------------------|-----------------------------------|
| <u>Classes</u> | <u>Sieves</u> |
| Mottled Peas | 9/64" x 3/4" |
| Special Grade - Small Peas | 10/64" x 3/4" |
| All Other Peas | 11/64" x 3/4" (oblong or slotted) |

- (2) Size smooth peas for determining special grade "Large" or "Small" by sieving the representative portion with the appropriate size sieve (see Table 2). For Mixed Dry peas and Miscellaneous Dry peas, use the sieve prescribed for the class of peas that predominates the mixture.

| <u>Table 2 - Prescribed Sieves</u> | |
|--|---|
| <u>Special Grade</u> | <u>Sieves</u> |
| Large Smooth Dry Peas Small Smooth Dry Peas | 16/64" round-hole 16/64" round-hole and 10/64" x 3/4" |

b. Size the peas as follows:

- (1) Nest the appropriate size sieve(s) on top of a bottom pan.
- (2) Place the sieve in a mechanical sizer so that the slotted perforations are parallel to the motion of the sizer and set the timer to 20.
- (3) Put the representative portion in the center of the sieve and actuate the sizer.

NOTE: If a mechanical sizer is unavailable, hold the sieves and bottom pan level and, using a steady motion, move the sieves from right to left approximately 10 inches, and return from left to right to complete one sieving operation. Repeat this operation twenty times.

- (4) Return the peas remaining in the perforations of the sieve to the portion that remains on top of the sieve.
 - (5) Determine the percent of peas that pass through the sieve(s).
- c. Record the percent of peas that pass through the sieve(s) and the size of sieve(s) used in the determination on the work record.
- (1) When determining uniformity of size, if more than 3.0 percent of the peas pass through the sieve, record the percent that passed through on the certificate to the nearest tenth percent and grade the peas "U.S. Sample grade."
 - (2) When determining special grade "Large" or "Small:"

- (a) If not more than 3.0 percent of the peas pass through a 16/64-inch round-hole sieve, show the special grade "Large" on the work record and on the grade line of the certificate.
- (b) If not more than 3.0 percent of the peas remain on top of a 16/64-inch round-hole sieve and not more than 3.0 percent pass through a 10/64- x 3/4-inch sieve, show the special grade "Small" on the work record and on the grade line of the certificate.

NOTE: Upon request, the percentage of peas that will pass through a 9/64- x 3/4-inch, 10/64- x 3/4-inch, and/or 11/64- x 3/4-inch (oblong or slotted) sieve may also be shown in the result section of the certificate.

4.29 COLOR

Good Color Peas. Dry peas that in mass are practically free from discoloration and have the natural color and appearance characteristics of the predominating class.

Fair Color Yellow Peas. Dry yellow peas that in mass are lightly to moderately discolored as a result of storage or any other cause to the extent they cannot be considered of good color.

Poor Color Peas. Dry peas that in mass are distinctly off-color from the characteristic color of the predominating class as a result of age or any other cause.

- a. Determine color on a representative portion of approximately 250 grams after the removal of defective peas and foreign material.
- b. Available interpretive line prints (ILP) serve as the basis for this general appearance assessment.
 - (1) Peas must be considered as "poor color" if they are not of a good natural color or are stained to an extent that seriously affect the appearance of the lot.
 - (2) Peas that are discolored by dust or a slight amount of dirt, which can be removed by processing methods, must not be considered as "poor color."
- c. When dockage-free peas are determined to be other than "good color," record this information on the work record and result section of the certificate.
- d. Yellow Peas that are "fair" in color must grade no higher than U.S. No. 2. Peas

that are “poor” in color must grade no higher than U.S. No. 3.

4.30 U.S. SAMPLE GRADE CRITERIA

Basis of Determination. Determine U.S. Sample Grade criteria on the lot as a whole and/or the representative sample as a whole. (Table 3) shows the criteria and corresponding tolerance limits, and the appropriate basis of determination.

| TABLE 3 U.S. SAMPLE GRADE CRITERIA | | |
|--|-------------------------------|---------------------|
| Criteria | Number/Weight <u>1/</u> | |
| | Sample Basis | Lot Basis <u>2/</u> |
| Any numerical grading factor | exceeds limits for U.S. No. 3 | N/A |
| Moisture | more than 15.0% | N/A |
| Animal filth | 2 or more | 2 or more |
| Deer/Elk Pellets | 1 or more | 1 or more |
| Broken Glass (any size) | Presence | Presence |
| Live Insects | 2 or more | 2 or more |
| Metal Fragments | 2 or more | 2 or more |
| Odor | Presence | Presence |
| Insect Webbing or Filth | 2 or more | 2 or more |
| Heating | Presence | Presence |
| <u>1/</u> Record count factors to the nearest whole number. <u>2/</u> The entire sample of a submitted sample is considered as the lot. | | |

Certification. Grade dockage-free peas “U.S. Sample Grade” when one or more of the limits in Table 3 are exceeded. Record the reason(s) why in the "Results" section of the certificate. Record count factors to the nearest whole number.

4.31 DISTINCTLY LOW QUALITY

Distinctly Low Quality. Whole dry peas which are obviously of inferior quality because they are stained by an unknown foreign substance or because they otherwise contain a known toxic substance(s) or an unknown foreign substance(s) or because they are in an unusual state or condition, and which cannot be graded by use of the other grading factors provided in the standards.

- a. Determine distinctly low quality on the basis of the lot as a whole or the representative sample as a whole.

- b. Peas that are obviously affected by unusual conditions which adversely affect the quality of the peas, such as **unknown foreign substance, or treatment with a fungicide**, must be considered to be "distinctly low quality."
- c. Record the words "Distinctly Low Quality" and the reason(s) why in the "Results" section of the certificate, and grade the peas "U.S. Sample grade."

4.32 VISUAL REFERENCE IMAGES

Visual Reference Images (VRI) (Table 4) are used to ensure consistent and uniform application of grading lines and illustrate types of damage in conjunction with written descriptions.

| Table 4 Visual Reference Images | |
|--|-----------------------------------|
| PEAS/S. PEAS – 1.0 | DAMAGE (CHALKY) |
| PEAS – 1.1 | DAMAGE (A. DIRT, B. GRIME) |
| PEAS/S. PEAS – 1.2 | HEAT DAMAGE |
| PEAS/S. PEAS – 1.3 | DAMAGED BY HEAT |
| PEAS – 1.4 | MOLD/MILDEW DAMAGE |
| PEAS – 1.5 | SPROUT DAMAGE |
| PEAS – 1.6 | WEEVIL DAMAGE |
| S. PEAS – 1.61 | WEEVIL DAMAGE (CAVITY) |
| PEAS – 1.7 | WEEVIL DAMAGE (STING) |
| PEAS – 1.8 | FROST DAMAGE |
| PEAS/S. PEAS – 2.0 | BLEACHED (GREEN PEAS) |
| PEAS/S. PEAS – 2.1 | BLEACHED (YELLOW PEAS) |
| PEAS – 3.0 | CRACKED SEEDCOATS |
| S. PEAS – 4.0 | STAINED (GREEN) |
| S. PEAS – 4.1 | STAINED (YELLOW) WHOLE |
| S. PEAS – 4.2 | DRY PEA SHRIVELED |
| PEAS – 5.0 | (SMOOTH) SHRIVELED |
| PEAS – 5.2 | (WRINKLED) |
| PEAS – 5.3 | BACTERIUM/FUNGAL STAIN |
| PEAS – 5.4 | WEATHER DAMAGE |

PAGE RESERVED

GRADES AND GRADE REQUIREMENTS FOR DOCKAGE-FREE PEAS

| Grading Factors | Maximum percent limits of: | | |
|--|-----------------------------|------|------|
| | Grades U.S. Nos. <u>1</u> / | | |
| | 1 | 2 | 3 |
| Defective Peas | | | |
| Weevil-Damaged Peas | 0.3 | 0.8 | 1.5 |
| Heat-Damaged Peas | 0.2 | 0.5 | 1.0 |
| Damaged Peas <u>2</u> / | 1.0 | 1.5 | 2.0 |
| Other Classes <u>3</u> / | 0.3 | 0.8 | 1.5 |
| Bleached Peas <u>4</u> / | 1.5 | 3.0 | 5.0 |
| Split Peas | 0.5 | 1.0 | 1.5 |
| Shriveled Peas | 2.0 | 4.0 | 8.0 |
| Peas with Cracked Seedcoats | 5.0 | 7.0 | 9.0 |
| Foreign Material | 0.1 | 0.2 | 0.5 |
| Minimum Requirements for Color | Good | Good | Poor |
| Smooth Yellow Dry Peas | Good | Fair | Poor |
| <p>U.S. Sample grade: U.S. Sample grade must be dockage-free peas which:</p> <ul style="list-style-type: none"> (a) Do not meet the requirements for the grades U.S. Nos. 1, 2, or 3; or (b) Contain metal fragments, broken glass, or commercially objectionable odor; or (c) Contain more than 15 percent moisture; or (d) Are heating, or distinctly low quality; or (e) Are infested with live weevils or other live insects. <u>5</u>/ <p><u>1</u>/ Uniformity of Size Requirements - Dry peas of any of the numerical grades must be of such size that not more than 3.0 percent must pass through the appropriate oblong-hole sieve as follows:</p> <p style="padding-left: 40px;">Mottled peas 9/64" x 3/4"</p> <p style="padding-left: 40px;">Special grade - Small peas..... 10/64" x 3/4"</p> <p style="padding-left: 40px;">All other peas 1 1/64" x 3/4" oblong or slotted</p> <p><u>2</u>/ Damaged peas do not include weevil-damaged or heat-damaged peas.</p> <p><u>3</u>/ These limits do not apply to the class Mixed Dry peas.</p> <p><u>4</u>/ These limits do not apply to Mottled, Wrinkled and/or Miscellaneous Dry peas, except for Marrowfat- type Dry peas.</p> <p><u>5</u>/ As applied to dockage-free whole dry peas, the meaning of the term <u>infested</u> as set forth in the Pea and Lentil Inspection Handbook.</p> | | | |